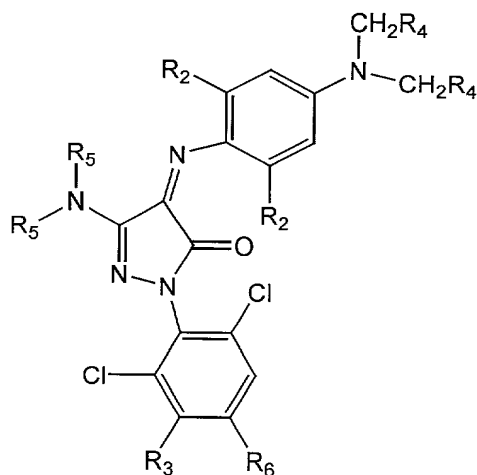


CLAIMS

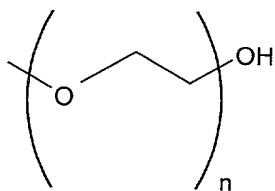
What is claimed is:

1. A magenta ink for ink-jet printing, comprising a dye having a structure as follows:



R2 is selected from the group consisting of methyl, ethyl, propyl, isopropyl and halogen;

- 10 R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group

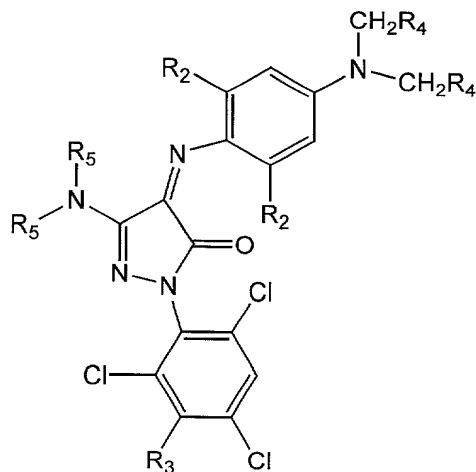


where n is from 2 to 100;

R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH;

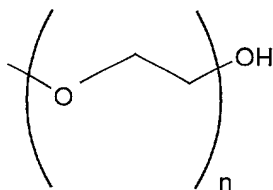
- 15 R5 is selected from the group consisting of ethyl, propyl, isopropyl, phenyl, substituted phenyl, and R4; and

R6 is selected from the group consisting of H, halogen, methyl, amino, substituted amino, R4 and R3.

[illegible]

5

R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group

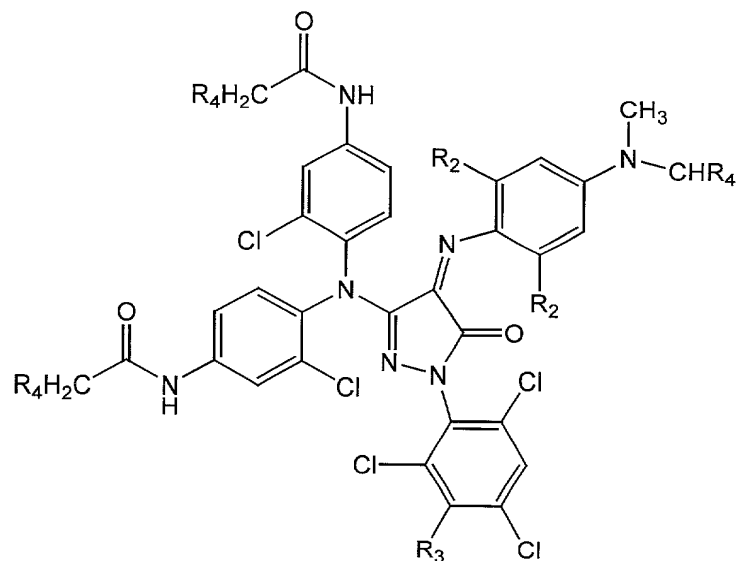


where n is from 2 to 100;

R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH; and

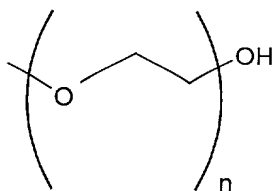
10 R5 is selected from the group consisting of ethyl, propyl, isopropyl, phenyl, substituted phenyl, and R4.

3. A magenta ink according to claim 1, wherein the dye has a structure as follows:



wherein R₂ is selected from the group consisting of methyl, ethyl, propyl, isopropyl and halogen;

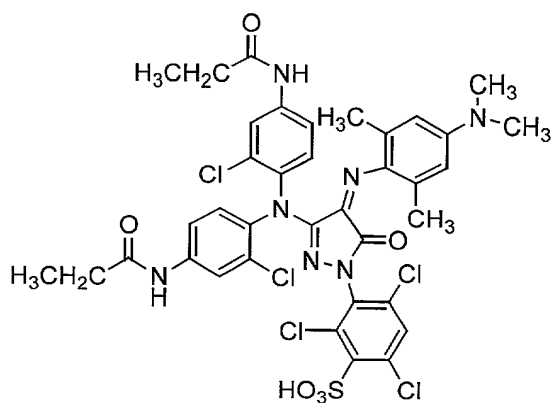
R₃ is selected from the group consisting of H, SO₃H, COOH, and a polyether group



where n is from 2 to 100; and

R₄ is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH.

4. A magenta ink according to claim 1, wherein the dye has a structure as follows:



5. The magenta ink of claim 1 wherein said magenta ink comprises from about 0.5 to about 6 wt% dye.

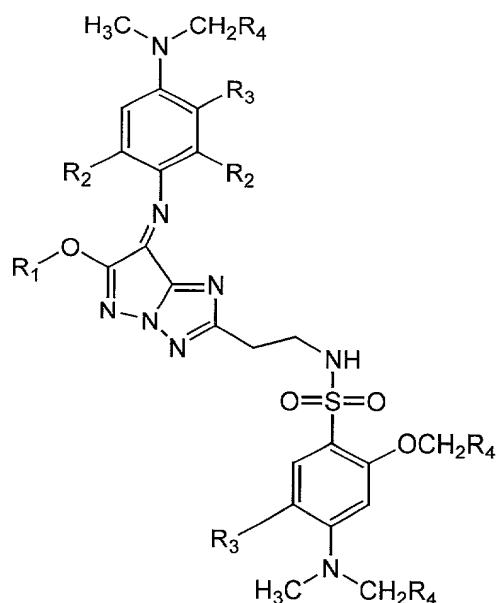
6. The magenta ink of claim 5 wherein said magenta ink comprises from about 0.5 to about 4 wt% dye.

7. The ink of claim 1 further comprising:

about 5 to about 30 wt % of at least one organic solvent;
0 to about 2.0 wt % of at least one component independently selected from the group consisting of surfactants, buffers, biocides, and metal chelators.

8. The ink of claim 1, having a visible light absorbance of 0.01 to 0.57 at λ_{max} and at a 1:10,000 dilution in water.

9. A magenta ink for ink-jet printing, comprising a dye having the following structure:

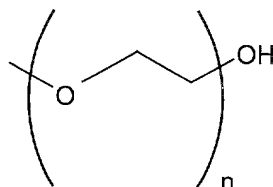


5

wherein R1 is selected from the group consisting of ethyl isopropyl, isobutyl, phenyl and substituted phenyl;

R2 is selected from the group consisting of methyl, ethyl, propyl, isopropyl and halogen;

10 R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group

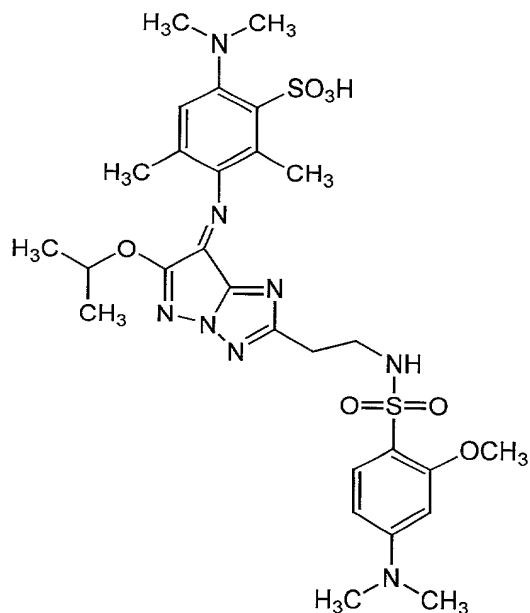


where n is from 2 to 100; and

R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH,

15 C₂H₄SO₃H and C₂H₄COOH.

10. The magenta ink of claim 9 wherein the dye has the following structure:



11. The magenta ink of claim 9 wherein said magenta ink comprises from about 0.5 to about 6 wt% dye.

12. The magenta ink of claim 11 wherein said magenta ink comprises from about 0.5 to about 4 wt% dye.

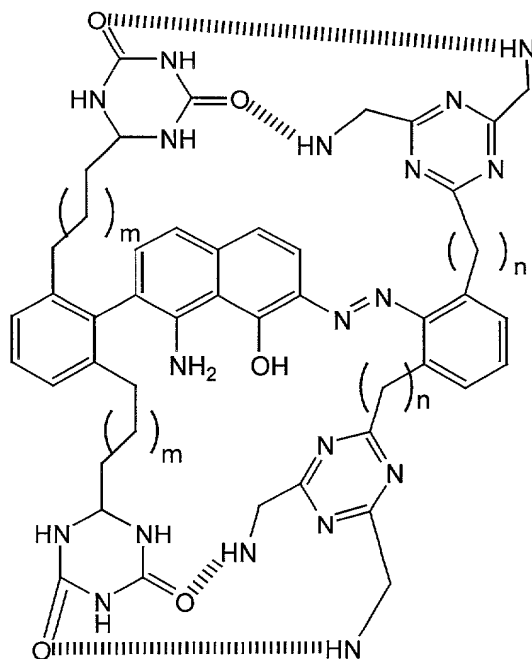
13. The ink of claim 9 further comprising:

about 5 to about 30 wt % of at least one organic solvent;

0 to about 2.0 wt % of at least one component independently selected from the group consisting of surfactants, buffers, biocides, and metal chelators.

14. The ink of claim 9, having a visible light absorbance of 0.01 to 0.57 at λ_{max} and at a 1:10,000 dilution in water.

15. A magenta ink for ink-jet printing, comprising a dye having the following structure:



wherein m and n are from 0 to 4 added carbons.

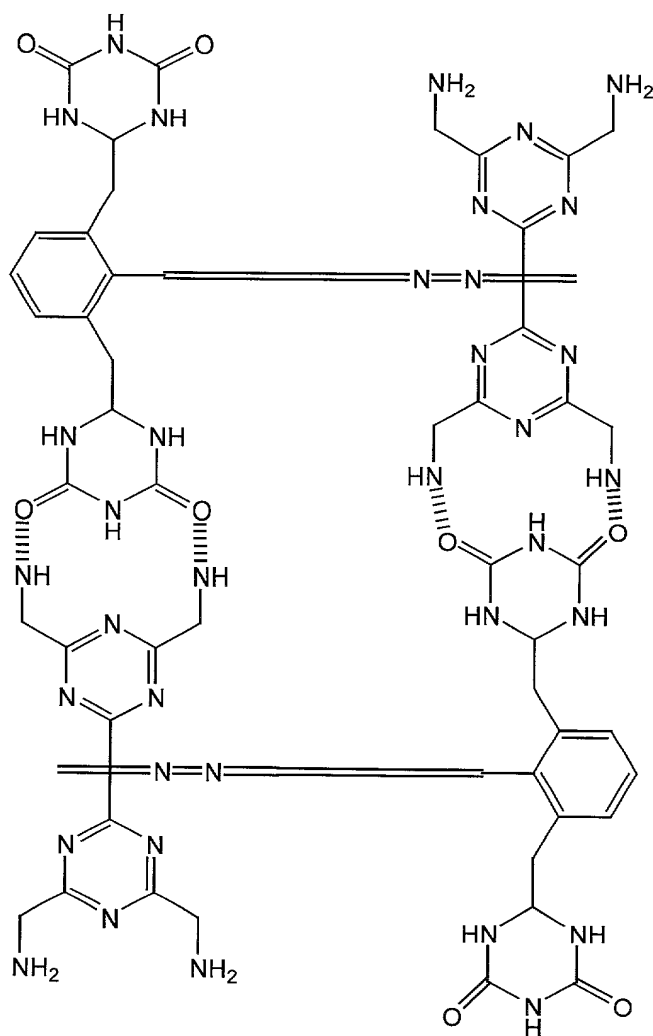
16. The magenta ink of claim 15 wherein said magenta ink comprises from about 0.5 to about 6 wt% dye.

17. The magenta ink of claim 16 wherein said magenta ink comprises from about 0.5 to about 4 wt% dye.

18. The ink of claim 15 further comprising:
about 5 to about 30 wt % of at least one organic solvent;
0 to about 2.0 wt % of at least one component independently selected from the group
consisting of surfactants, buffers, biocides, and metal chelators.

19. The ink of claim 15, having a visible light absorbance of 0.01 to 0.57 at λ_{max} and at a 1:10,000 dilution in water.

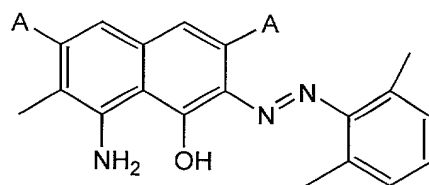
20. A magenta ink for inkjet printing comprising a dye having the following structure:



5 wherein

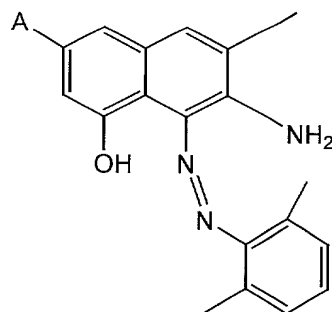


is an azo dye structure



wherein A is selected from H and SO₃H,

or a gamma acid based dye structure



wherein A is selected from H and SO₃H.

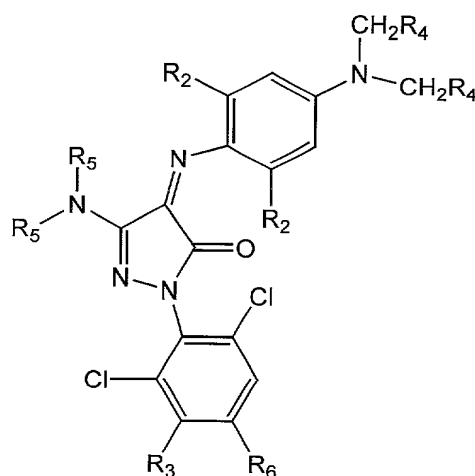
21. The magenta ink of claim 20 wherein said magenta ink comprises from about 0.5 to about 6 wt% dye.

22. The magenta ink of claim 21 wherein said magenta ink comprises from about 0.5 to about 4 wt% dye.

23. The ink of claim 20 further comprising:
about 5 to about 30 wt % of at least one organic solvent;
0 to about 2.0 wt % of at least one component independently selected from the group
consisting of surfactants, buffers, biocides, and metal chelators.

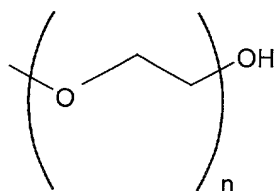
24. The ink of claim 20, having a visible light absorbance of 0.01 to 0.57 at λ_{max} and at a 1:10,000 dilution in water.

25. A method for ink-jet printing, comprising:
 providing at least one magenta ink containing at least one magenta dye having a
 visible light absorbance of 0.01 to 0.57 at λ_{max} at a 1:10,000 dilution in water
 and having a structure as follows:



wherein R2 is selected from the group consisting of methyl, ethyl, propyl, isopropyl
 and halogen;

R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group



where n is from 2 to 100;

R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH,
 C₂H₄SO₃H and C₂H₄COOH;

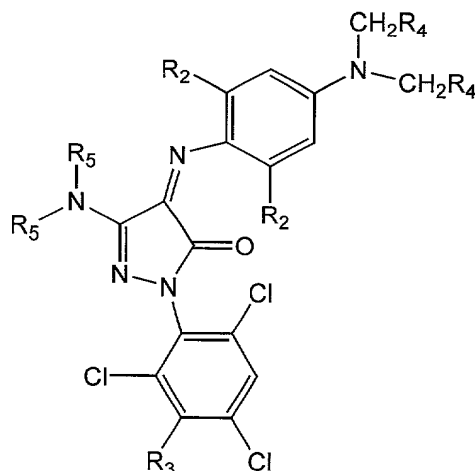
R5 is selected from the group consisting of ethyl, propyl, isopropyl, phenyl,
 substituted phenyl, and R4; and

R6 is selected from the group consisting of H, halogen, methyl, amino, substituted
 amino, R4 and R3;

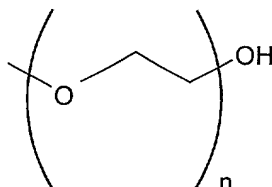
and

printing said ink on a printing medium by means of an ink-jet pen.

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	



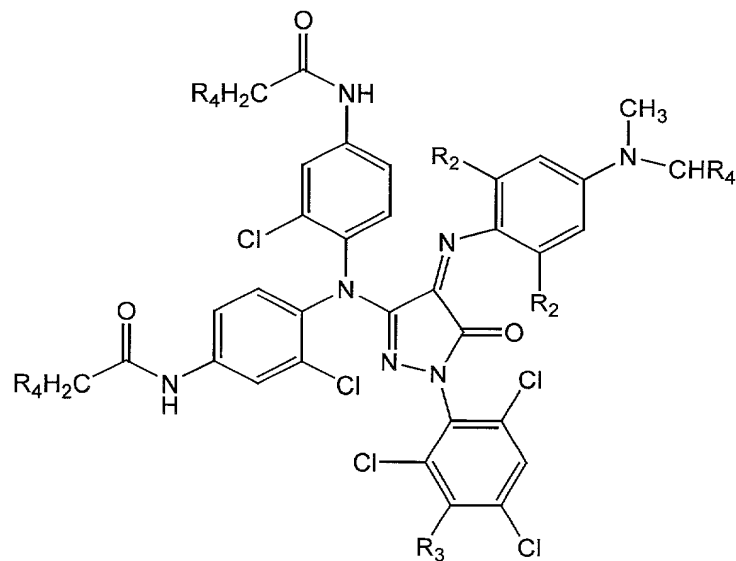
- R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group



10 R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH; and

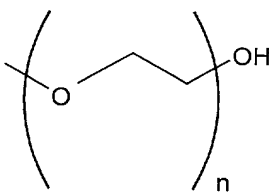
15

27. The method according to claim 25, wherein the structure of the magenta dye is as follows:



wherein R2 is selected from the group consisting of methyl, ethyl, propyl, isopropyl and halogen;

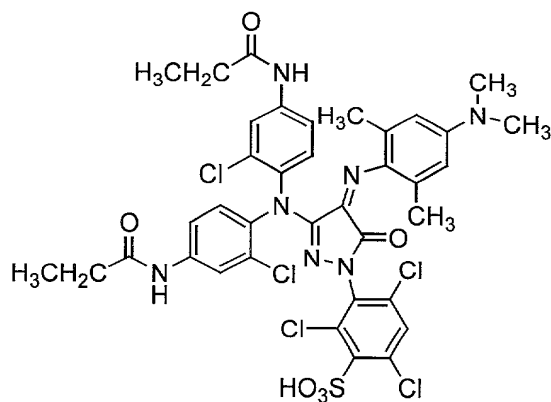
R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group



where n is from 2 to 100; and

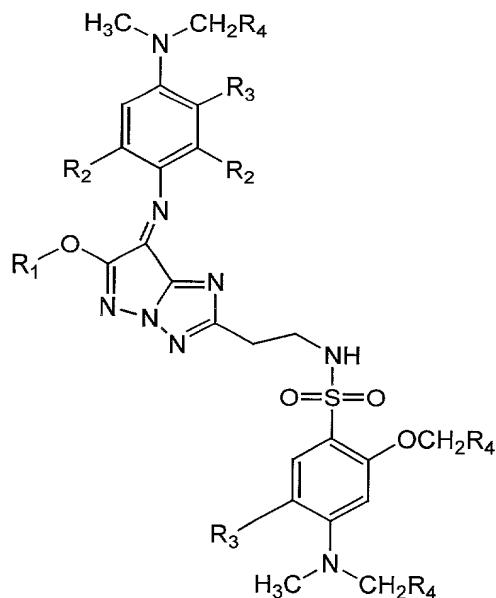
R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH.

28. The method according to claim 25, wherein the structure of the magenta dye is as follows:



29. A method for ink-jet printing, comprising:

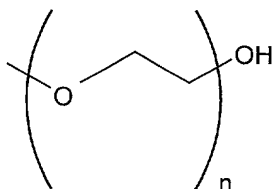
providing at least one magenta ink containing at least one magenta dye having a visible light absorbance of 0.01 to 0.57 at λ_{max} at a 1:10,000 dilution in water and having a structure as follows:



wherein R1 is selected from the group consisting of ethyl isopropyl, isobutyl, phenyl and substituted phenyl;

R2 is selected from the group consisting of methyl, ethyl, propyl, isopropyl and halogen;

R3 is selected from the group consisting of H, SO₃H, COOH, and a polyether group



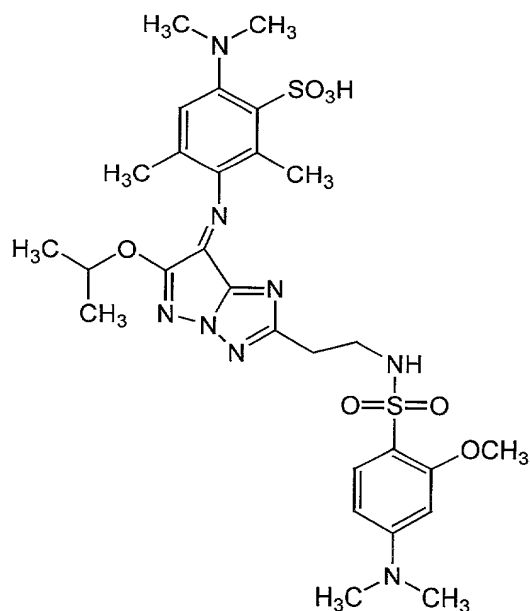
where n is from 2 to 100; and

R4 is selected from the group consisting of H, SO₃H, COOH, CH₂SO₃H, CH₂COOH, C₂H₄SO₃H and C₂H₄COOH;

and

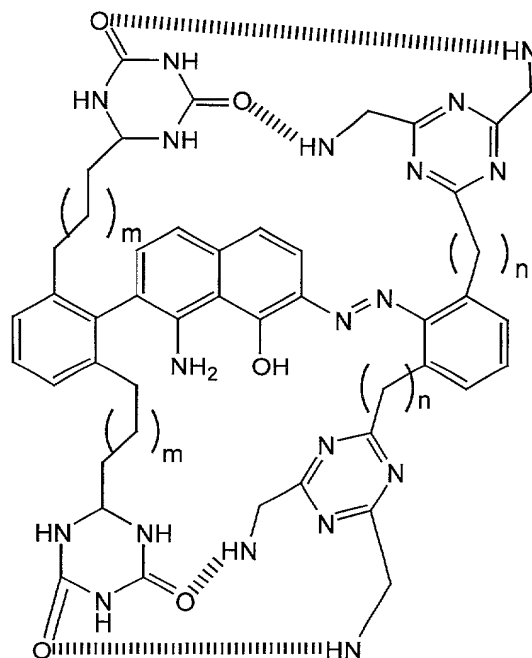
printing said ink on a printing medium by means of an ink-jet pen.

30. The method according to claim 29 wherein the structure of the magenta dye is as follows:



31. A method for ink-jet printing, comprising:
 providing at least one magenta ink containing at least one magenta dye having a
 visible light absorbance of 0.01 to 0.57 at λ_{max} at a 1:10,000 dilution in water
 and having a structure as follows:

5

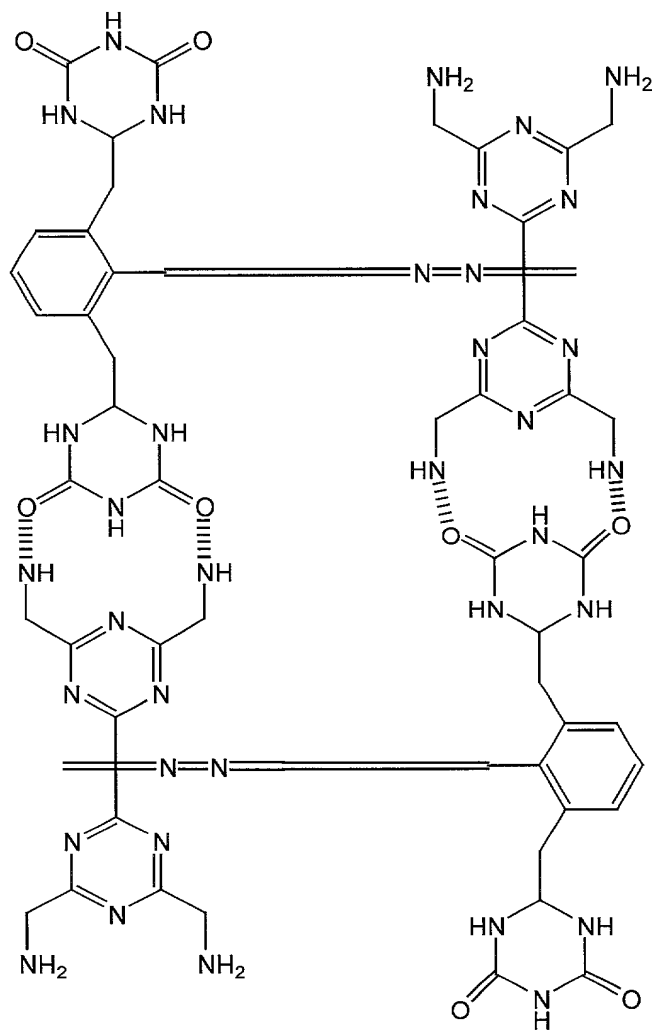


wherein m and n are from 0 to 4 added carbons.

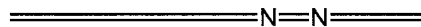
10 and

printing said ink on a printing medium by means of an ink-jet pen.

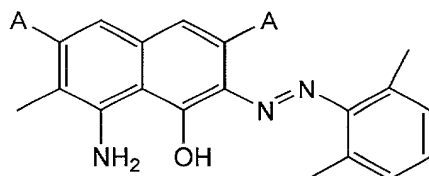
32. A method for ink-jet printing, comprising:
 providing at least one magenta ink containing at least one magenta dye having a
 visible light absorbance of 0.01 to 0.57 at λ_{max} at a 1:10,000 dilution in water
 and having a structure as follows:



5 wherein



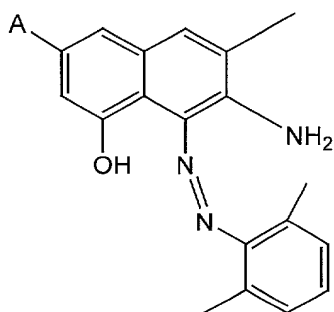
is an azo dye structure



wherein A is selected from H and SO₃H,

5

or a gamma acid based dye structure

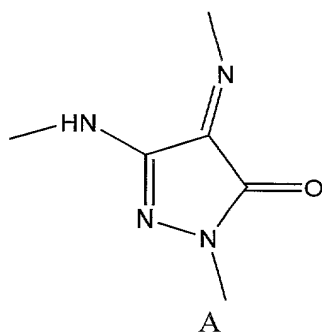


wherein A is selected from H and SO₃H.

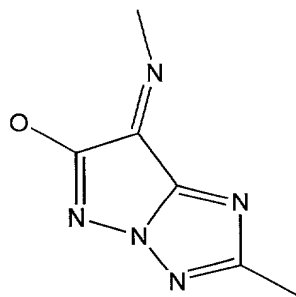
10 ; and

printing said ink on a printing medium by means of an ink-jet pen.

33. A method of stabilizing chromophore dyes containing imino groups, the imino groups selected from the group consisting of imino groups A and B:



15



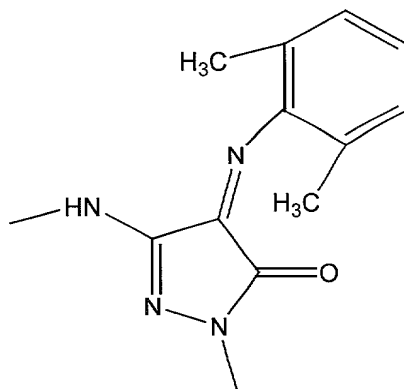
B

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the method comprising adding steric groups to protect imino carbons, the steric groups being selected from phenyl, methyl, ethyl, isopropyl, fluoride, chloride, bromide and iodide.

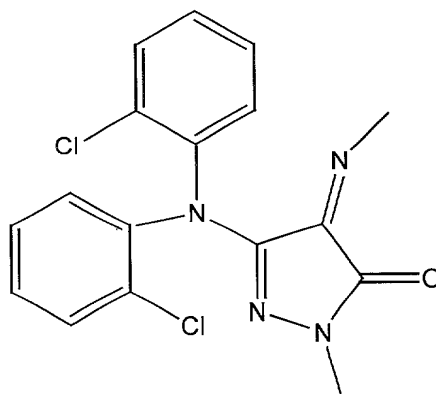
10

34. The method of claim 33 wherein the imino group A is protected by at least one methyl group attached ortho to an imino N-attached phenyl group:

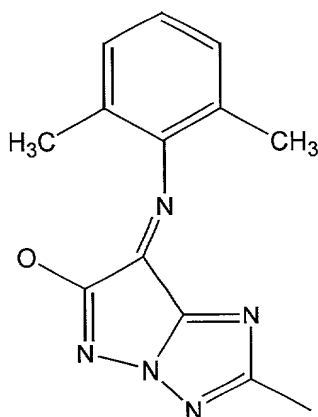


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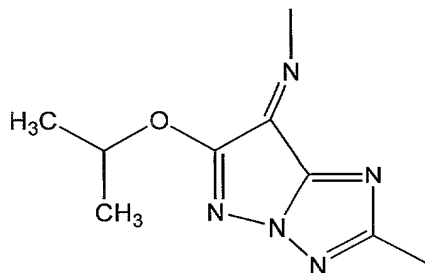
35. The method of claim 33 wherein the imino group A is protected by at least one phenyl group with at least one ortho chlorine attached:



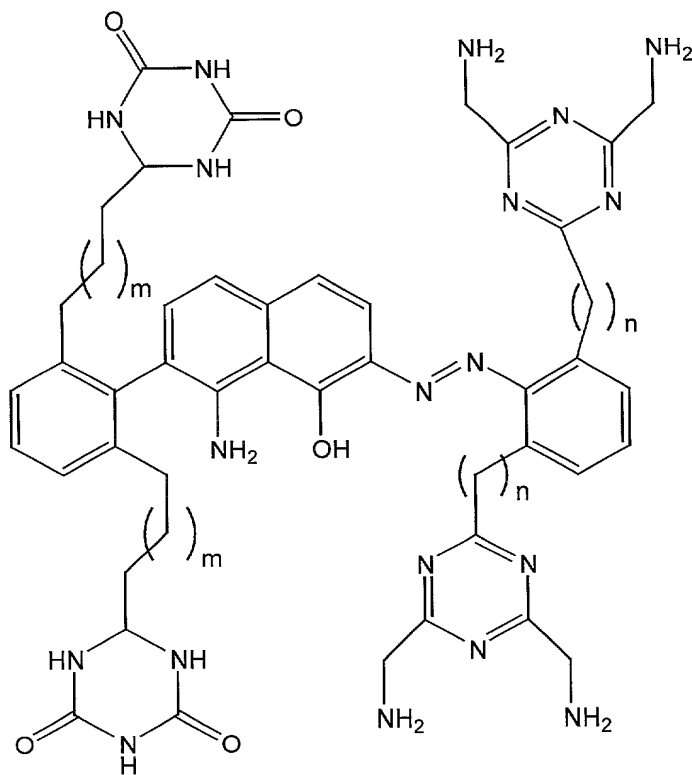
5 36. The method of claim 33 wherein the imino group B is protected by at least one phenyl group with at least one methyl group attached:



37. The method of claim 33 wherein the imino group B is protected by at least one O-attached isopropyl group:

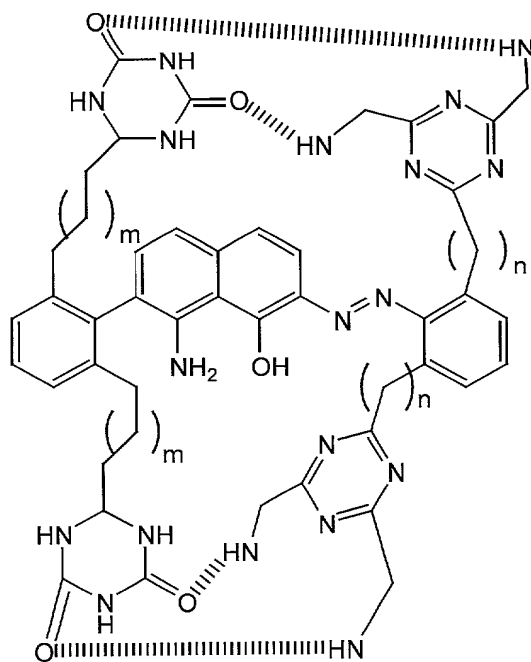


38. A method of stabilizing chromophore dyes comprising arms ending in at least one of cyanuric and melamine groups:



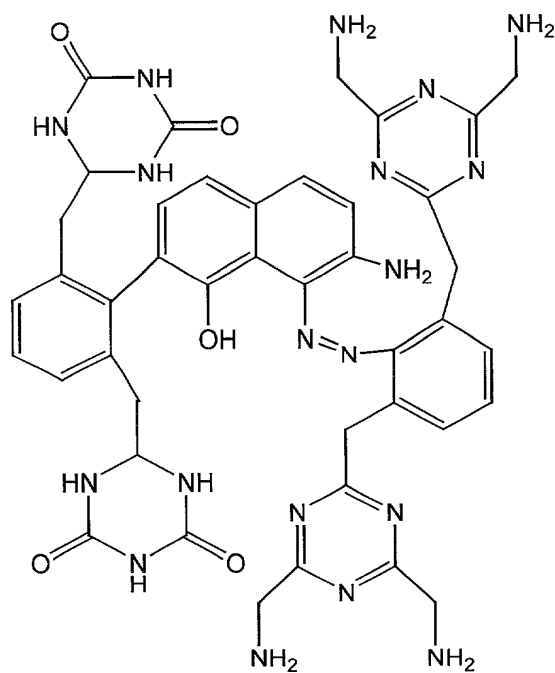
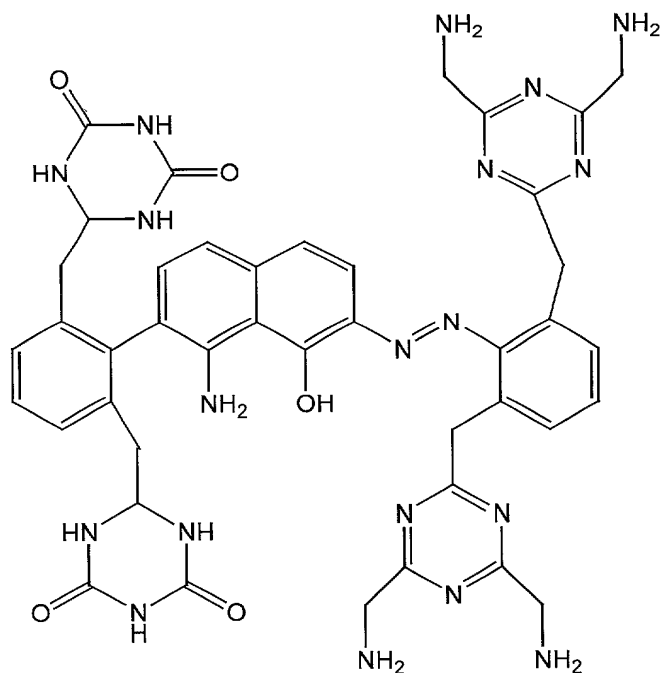
wherein m and n are from 0 to 4 added carbons.

- 5 the method comprising forming intramolecular hydrogen bonds between the cyanuric and melamine groups

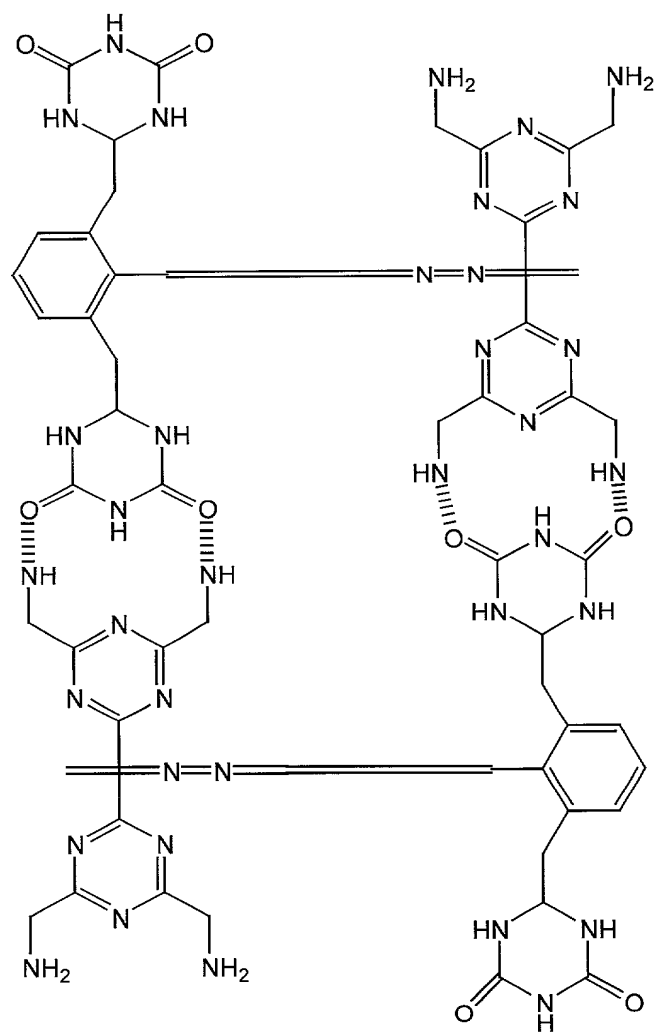


wherein m and n are from 0 to 4 added carbons.

39. A method of stabilizing chromophore dyes with one of the following structures comprising arms ending in at least one of cyanuric and melamine groups:



the method comprising forming intermolecular hydrogen bonds between the cyanuric and melamine groups of two different dye molecules:

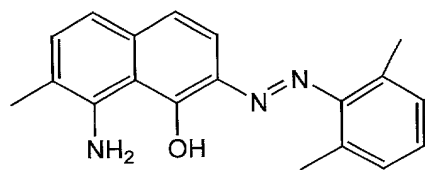


wherein

5



is an azo dye structure



or a gamma acid based dye structure

